

FIG. 1 is a block diagram of a vending machine 10 of the mechanical type. The machine 10 includes a display panel 12 and selection buttons 13. A purchaser 18 selects merchandise 19. The machine 10 includes a coin mechanism 14 and a display controller 20. The machine 10 includes a vending controller 21 and a display panel 12. The machine 10 includes a coin mechanism 14 and a display controller 20. The machine 10 includes a vending controller 21 and a display panel 12.

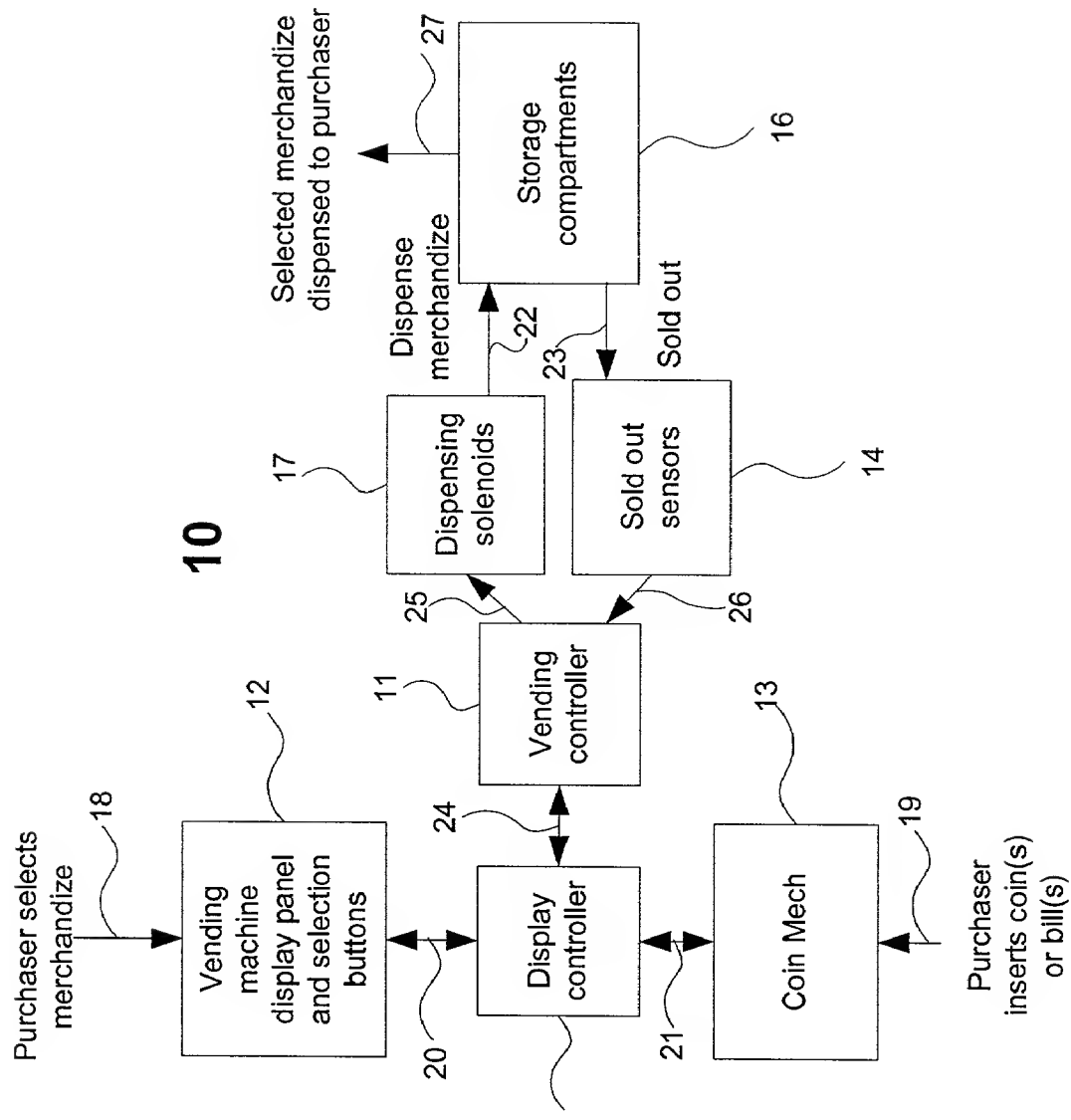


Fig. 1: Block diagram of a vending machine of the mechanical type

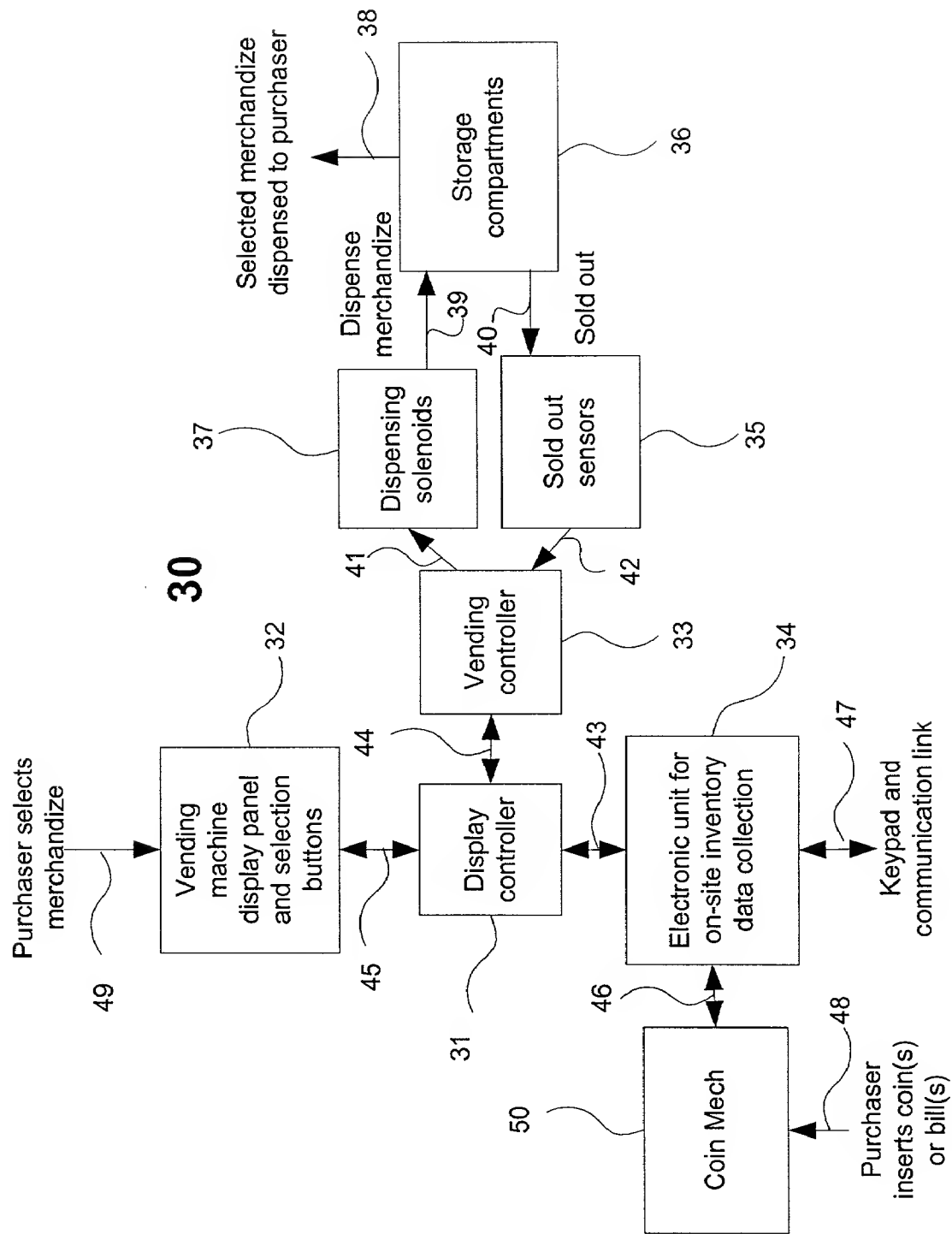


Fig. 2: Block diagram of a vending machine of the electronic type

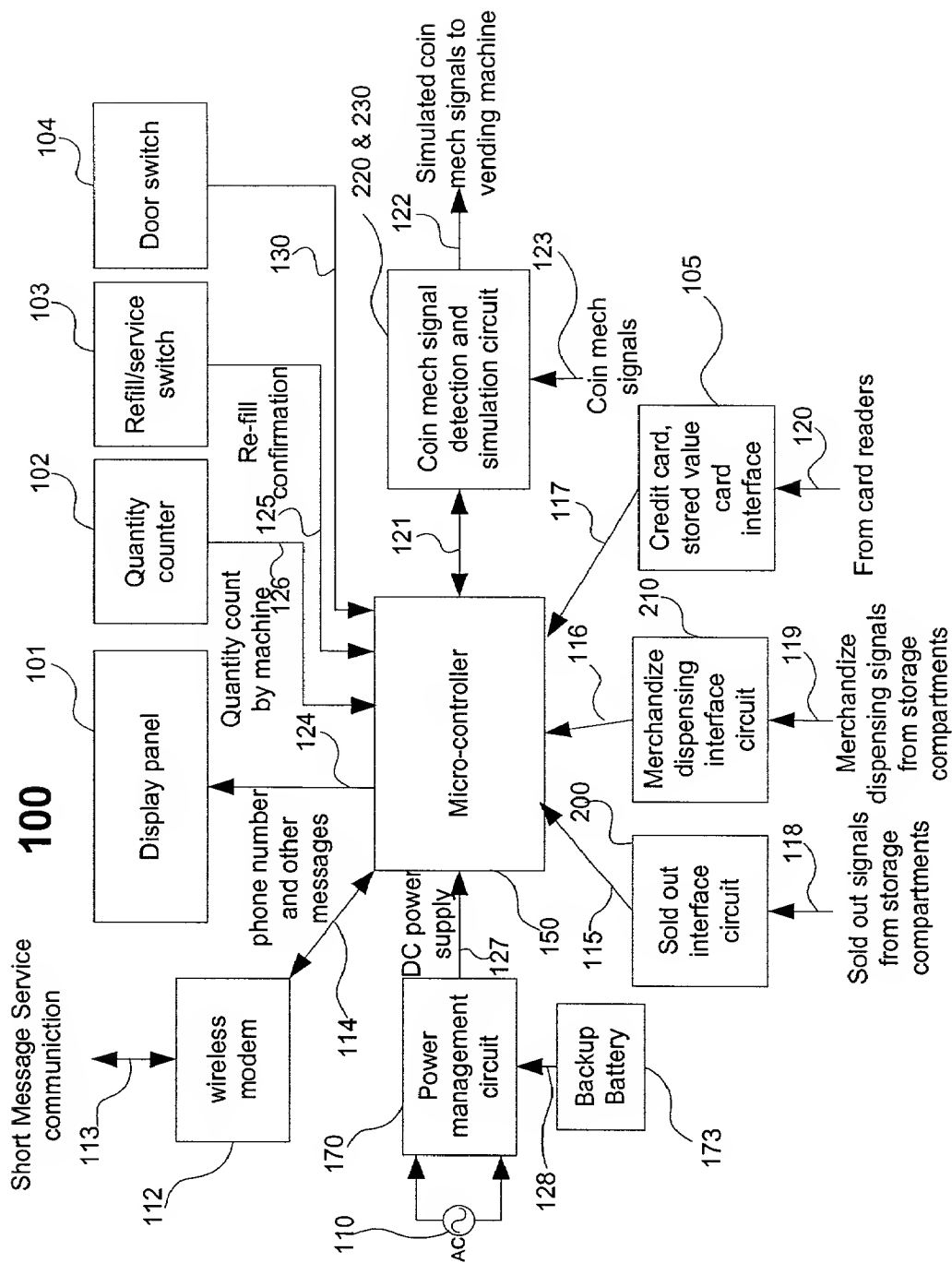


Fig. 3: Block diagram of the Control and Communication Unit (CCU)

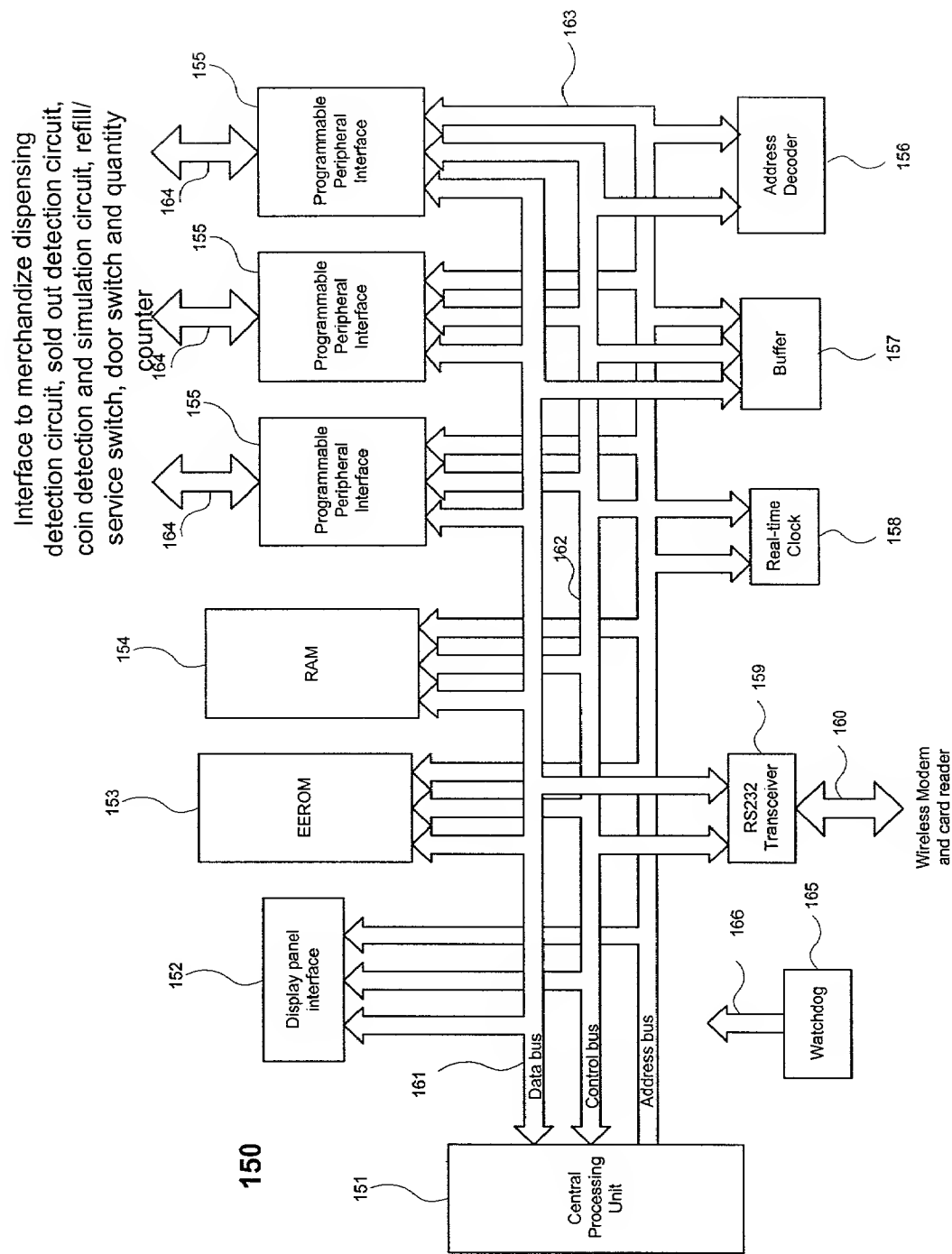


Fig. 4: Schematic diagram of the micro-controller circuit

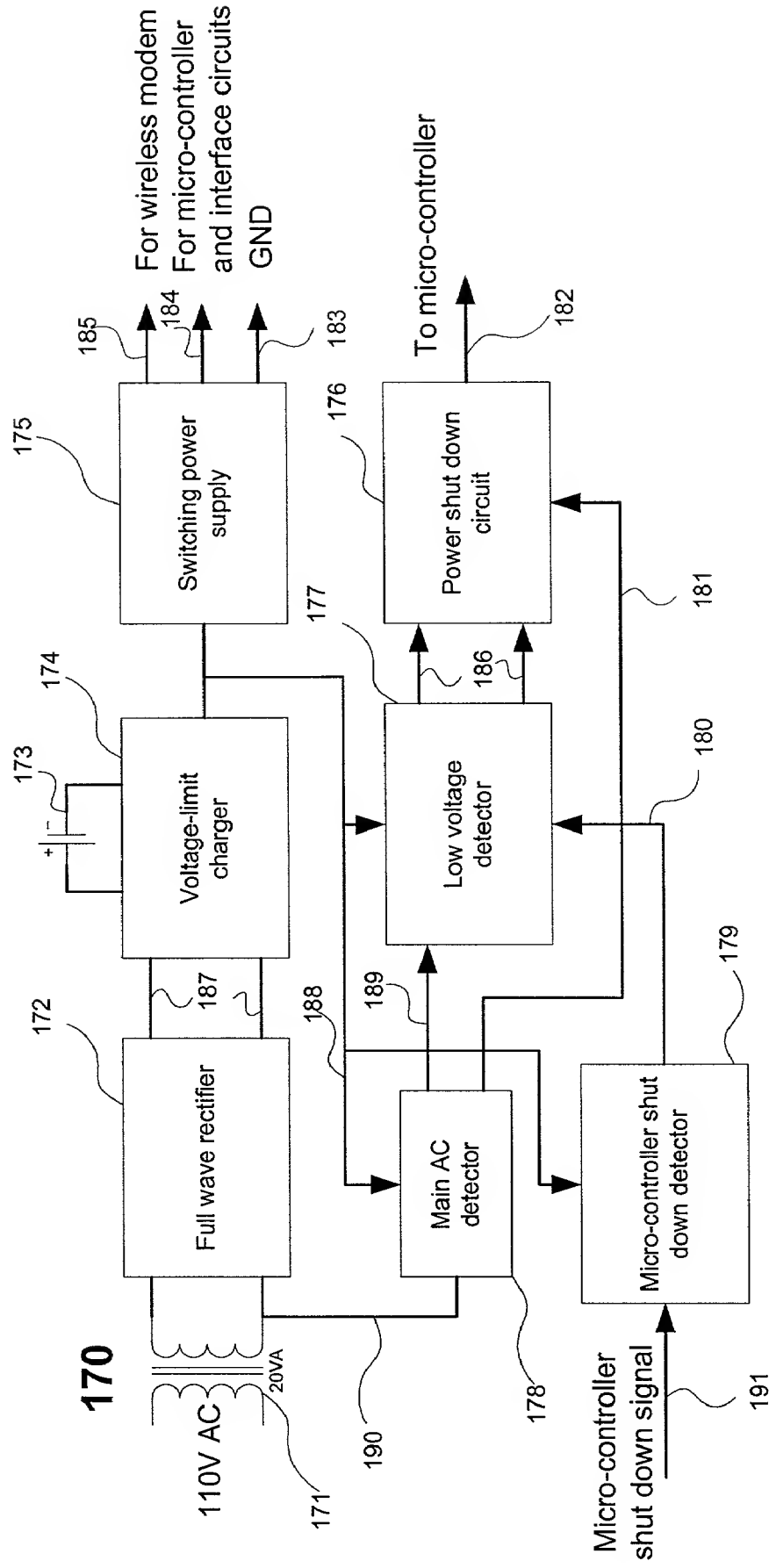


Fig. 5: Schematic diagram of the power management circuit



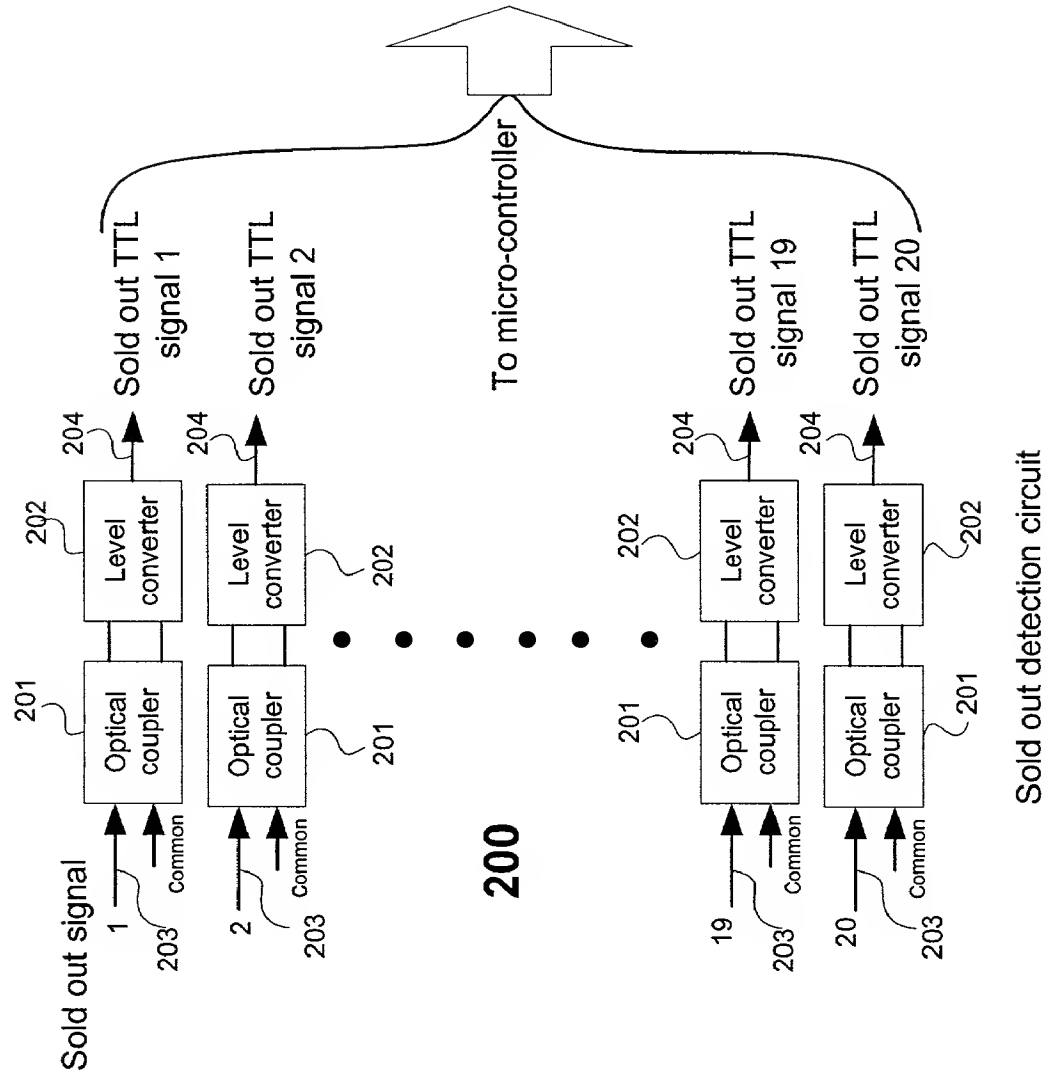


Fig. 7: Schematic diagram of the sold out interface circuit

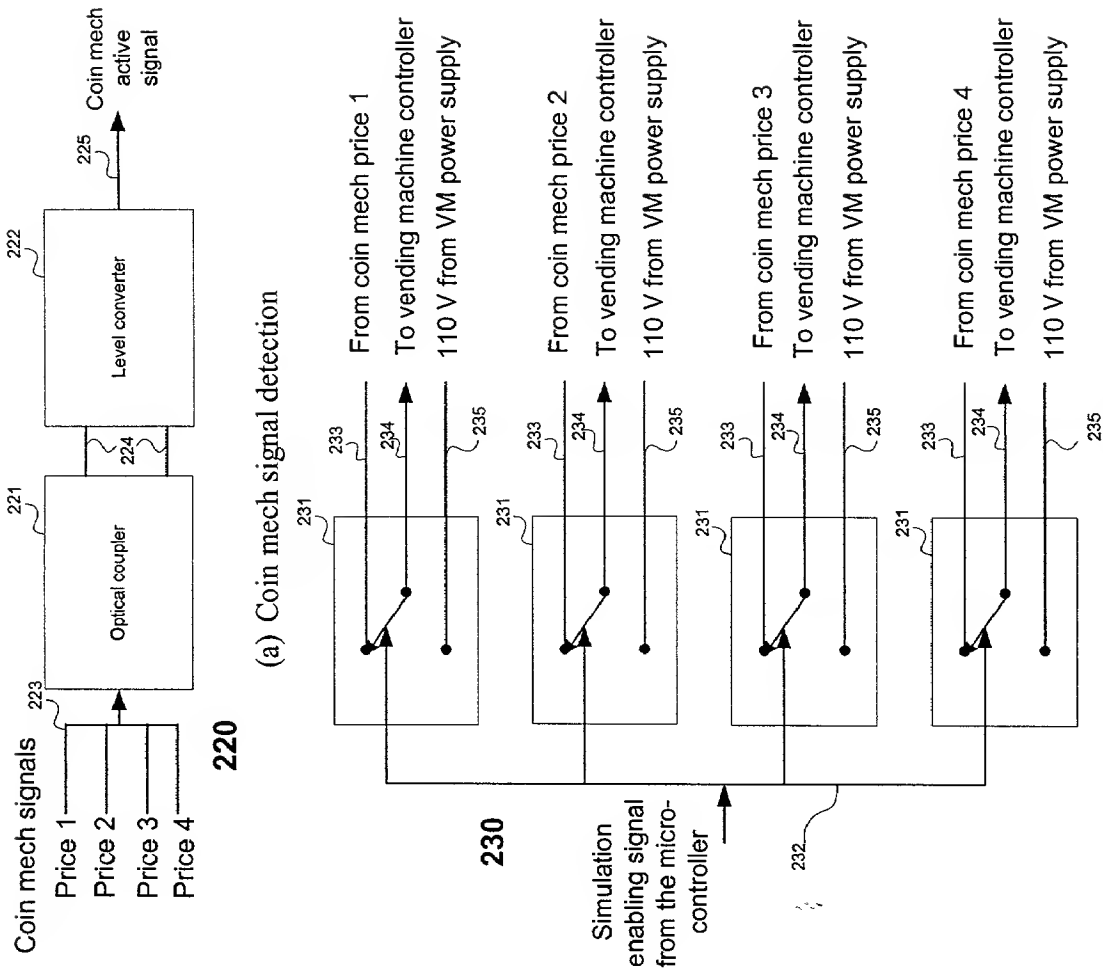


Fig. 8: Schematic diagram of the coin detection and simulation circuit



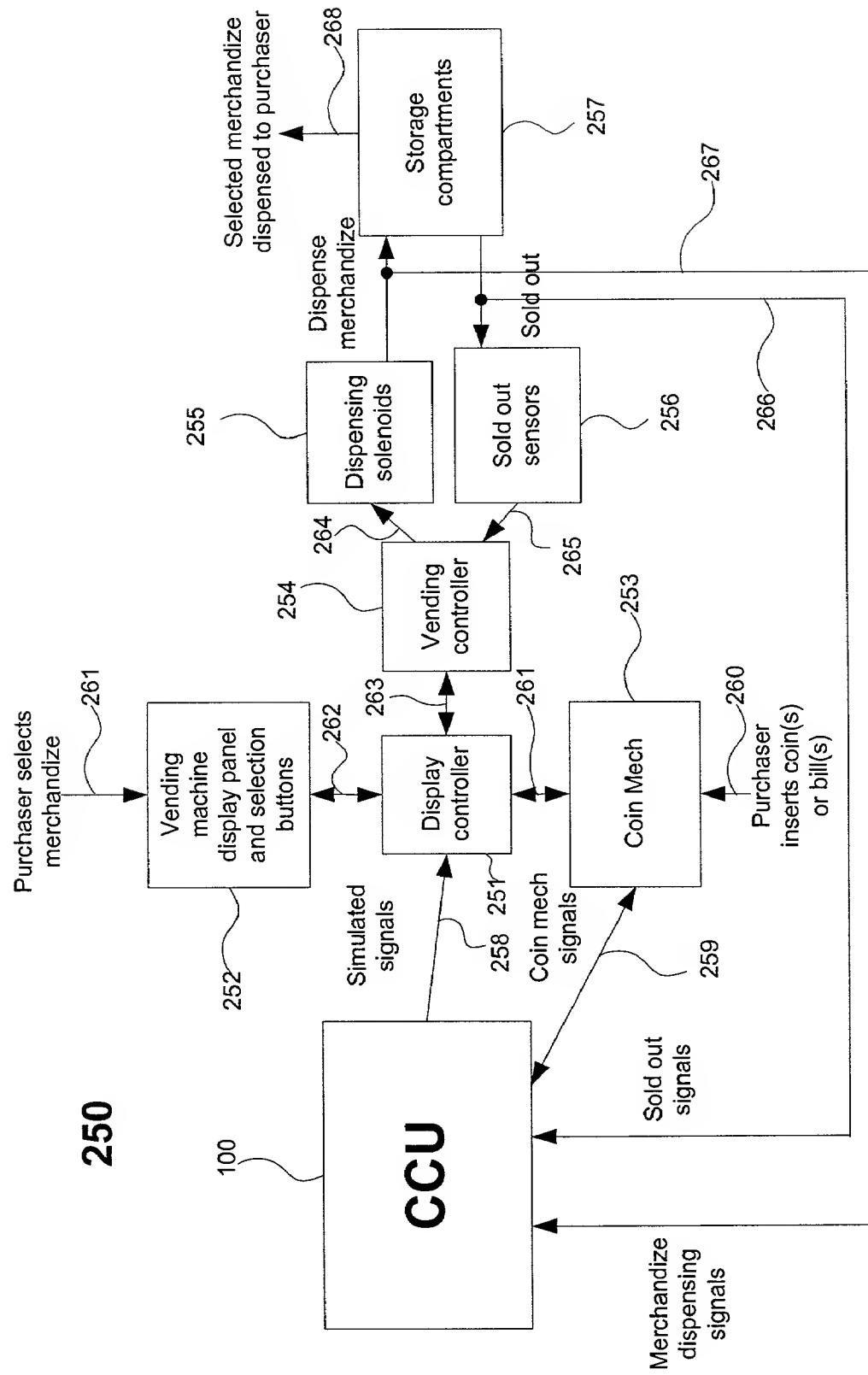
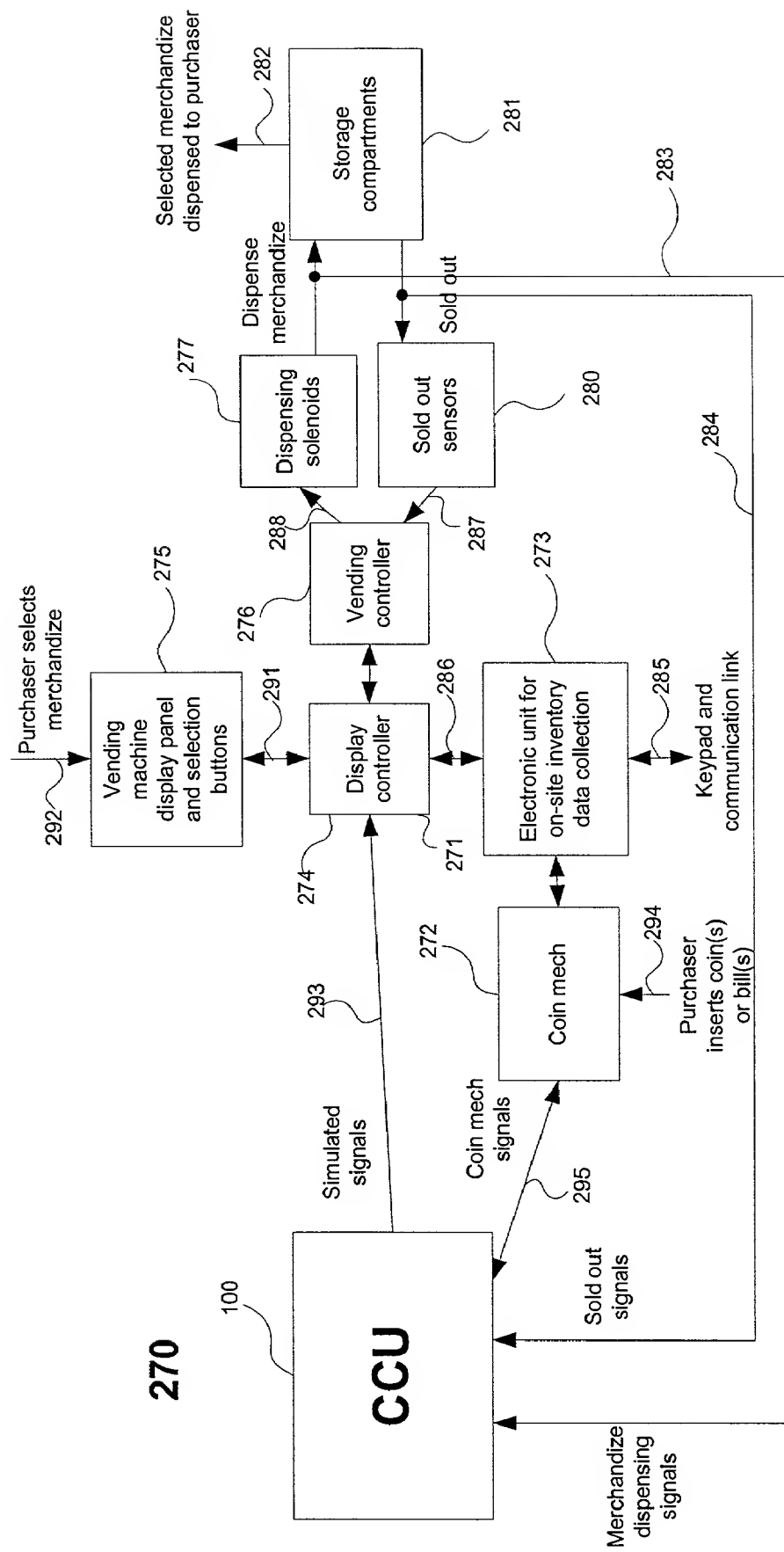


Fig. 9: Interfacing between the CCU and the vending machine of mechanical type



(a)

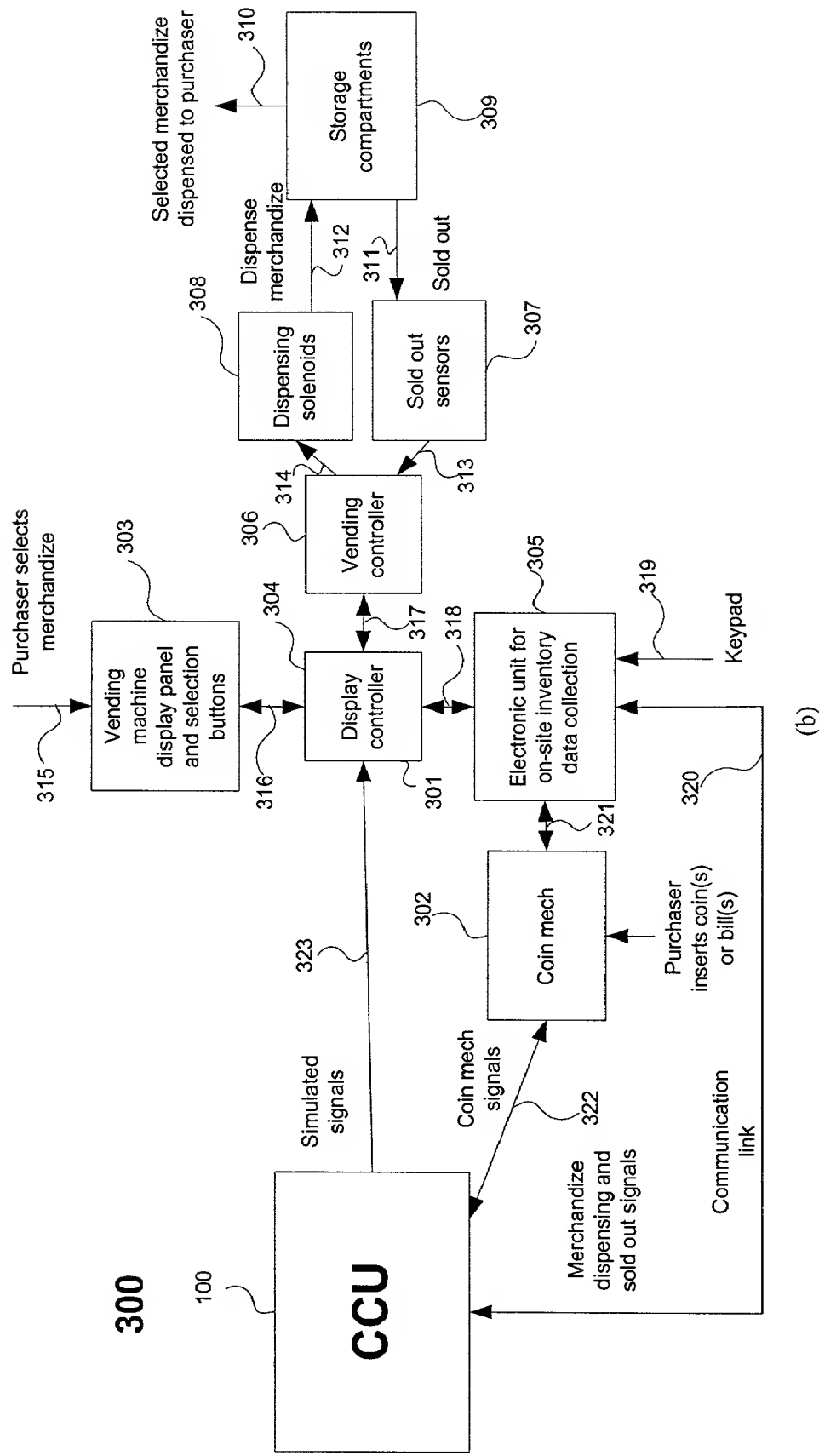


Fig. 10: Interfacing between the CCU and the vending machine of electronic type

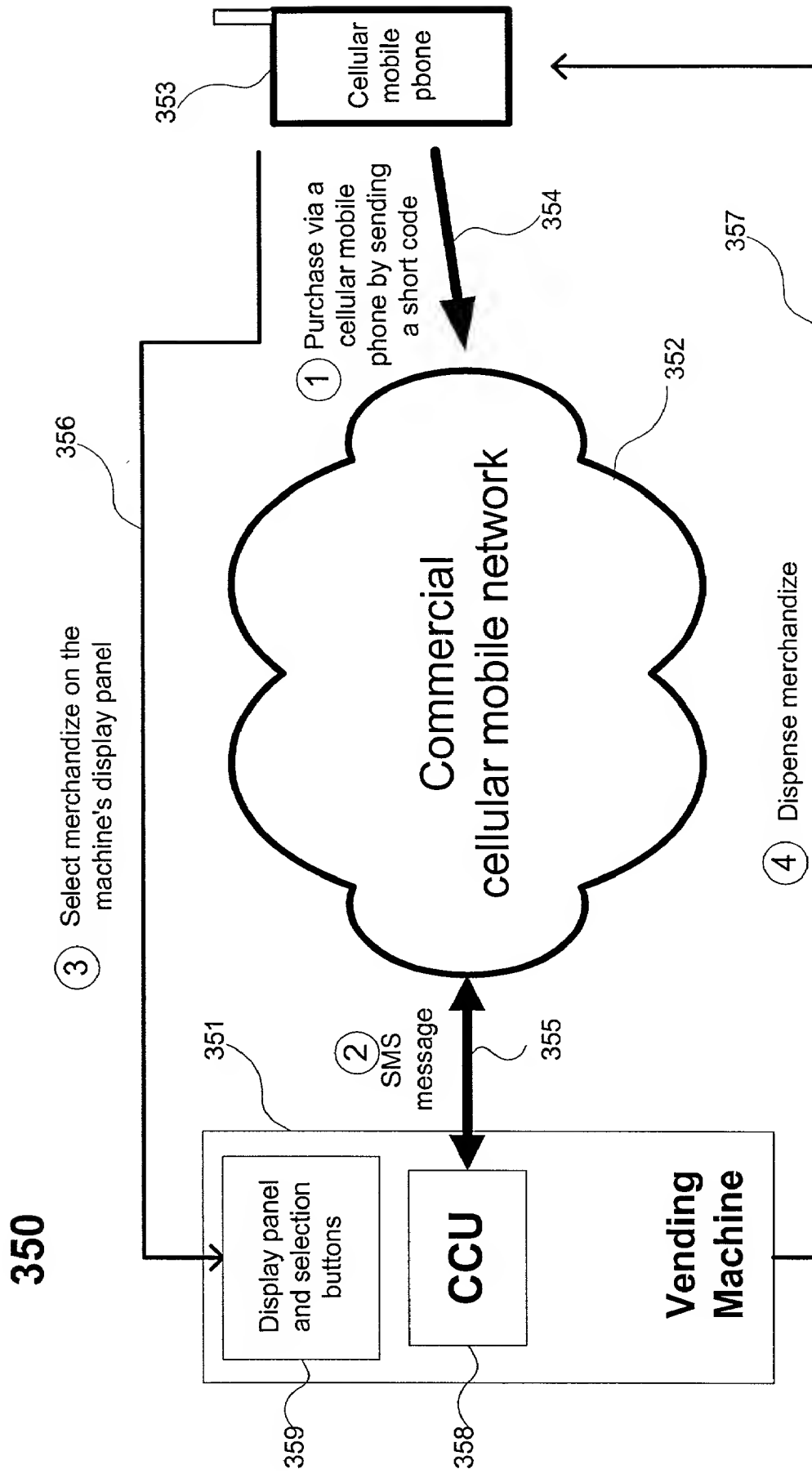
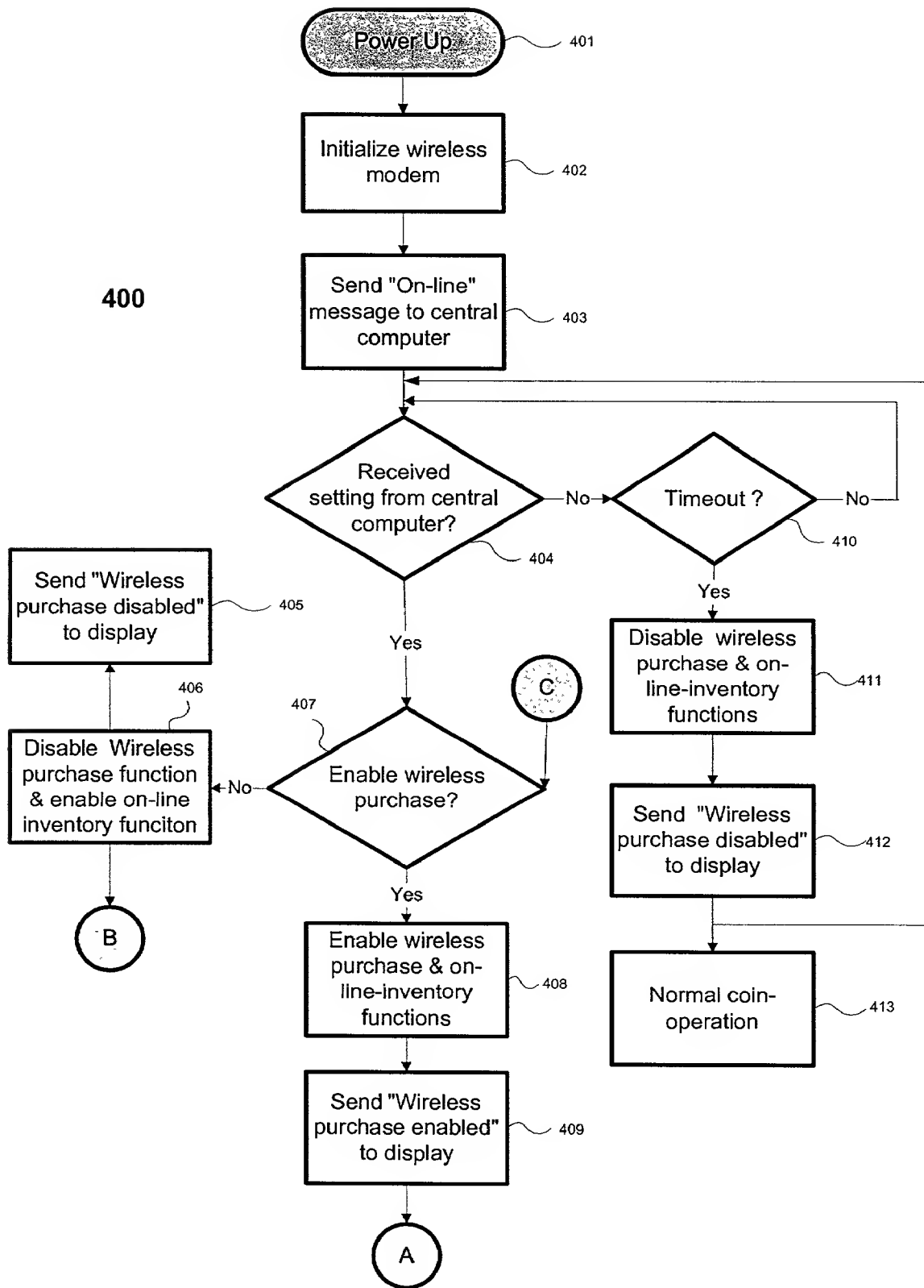


Fig. 11: Concept of wireless purchase through a cellular mobile phone



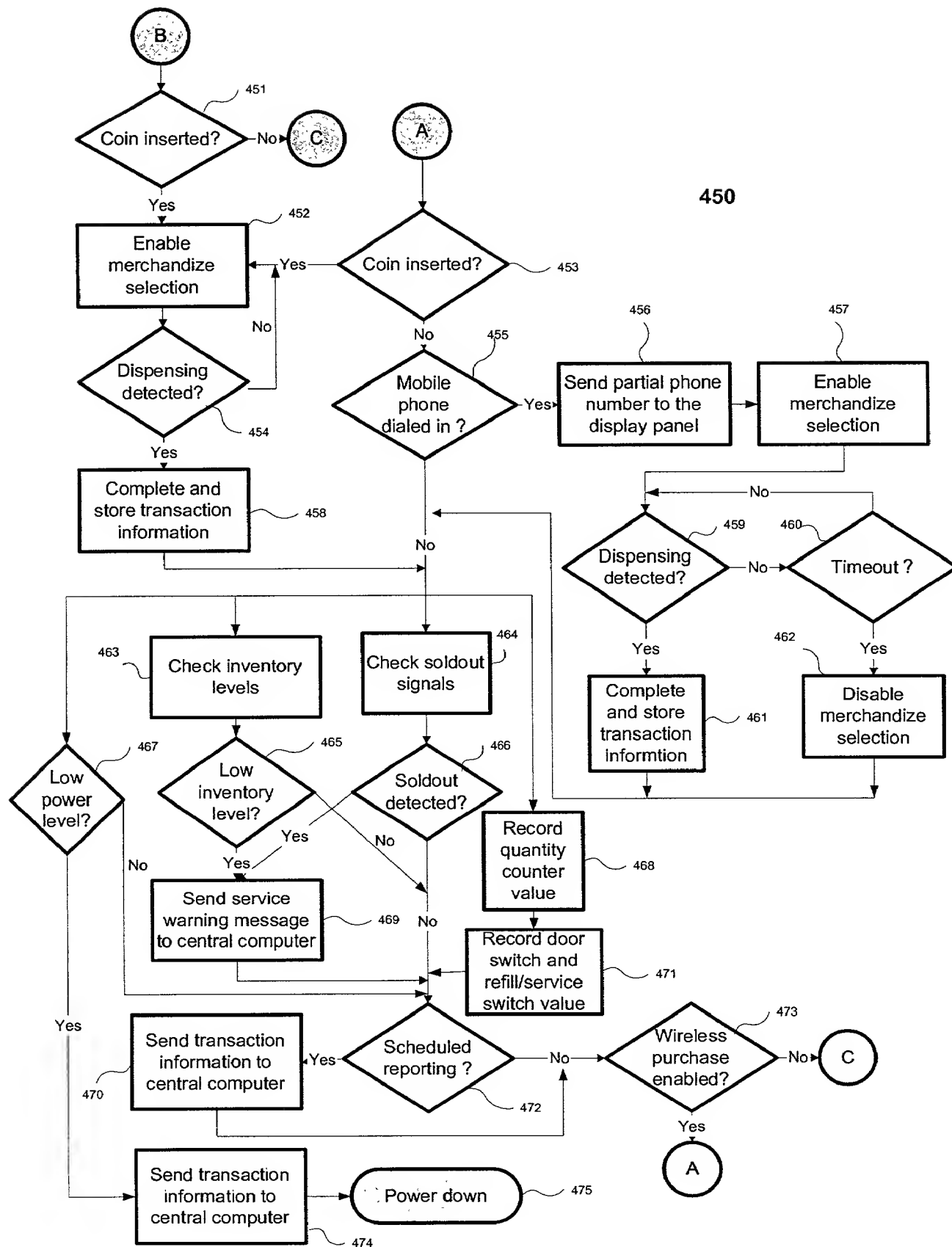


Fig. 12: Command and data flow of wireless purchase

FIG. 13 is a block diagram of an on-line inventory management configuration. The diagram shows a central cloud labeled "Commercial cellular mobile network" (372) connected to four "Vending Machine" units (371). Each machine contains a "Display panel and selection buttons" (371) and a "CCU" (371). Arrows labeled "Sales and inventory information per machine" (382) point from each machine to the network. The network is also connected to a "Central Control Computer" (374) via a "Fixed line or wireless modem" (383). The computer is further connected to an "On-line inventory database" (375) and an "Operator Server" (376) via a "Control and Synchronization" link (379). The database is connected to the server via a "Sales and inventory update" link (381). The server is connected to an "On-line reporting" unit (380).

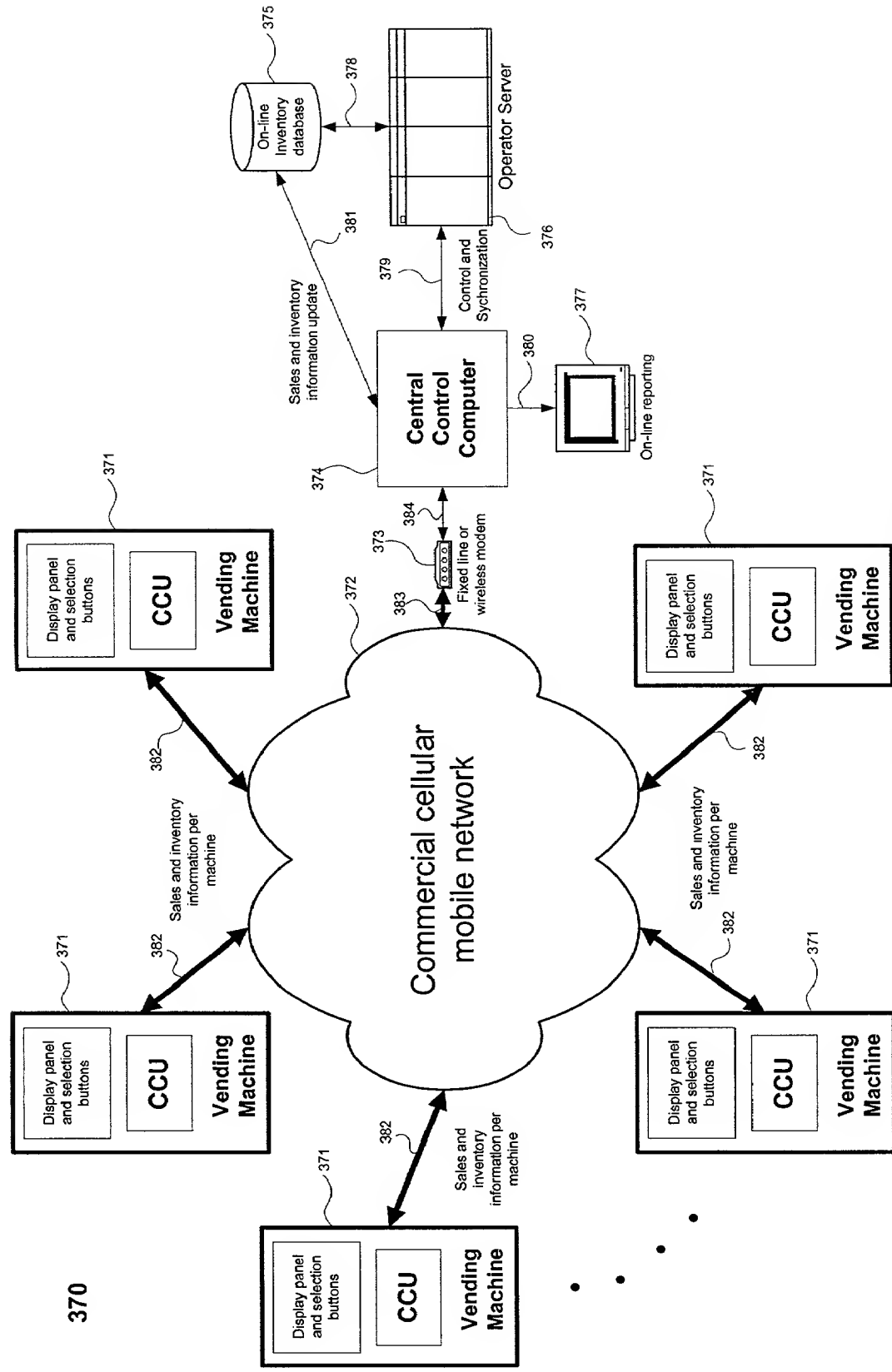


Fig. 13: On-line inventory management configuration

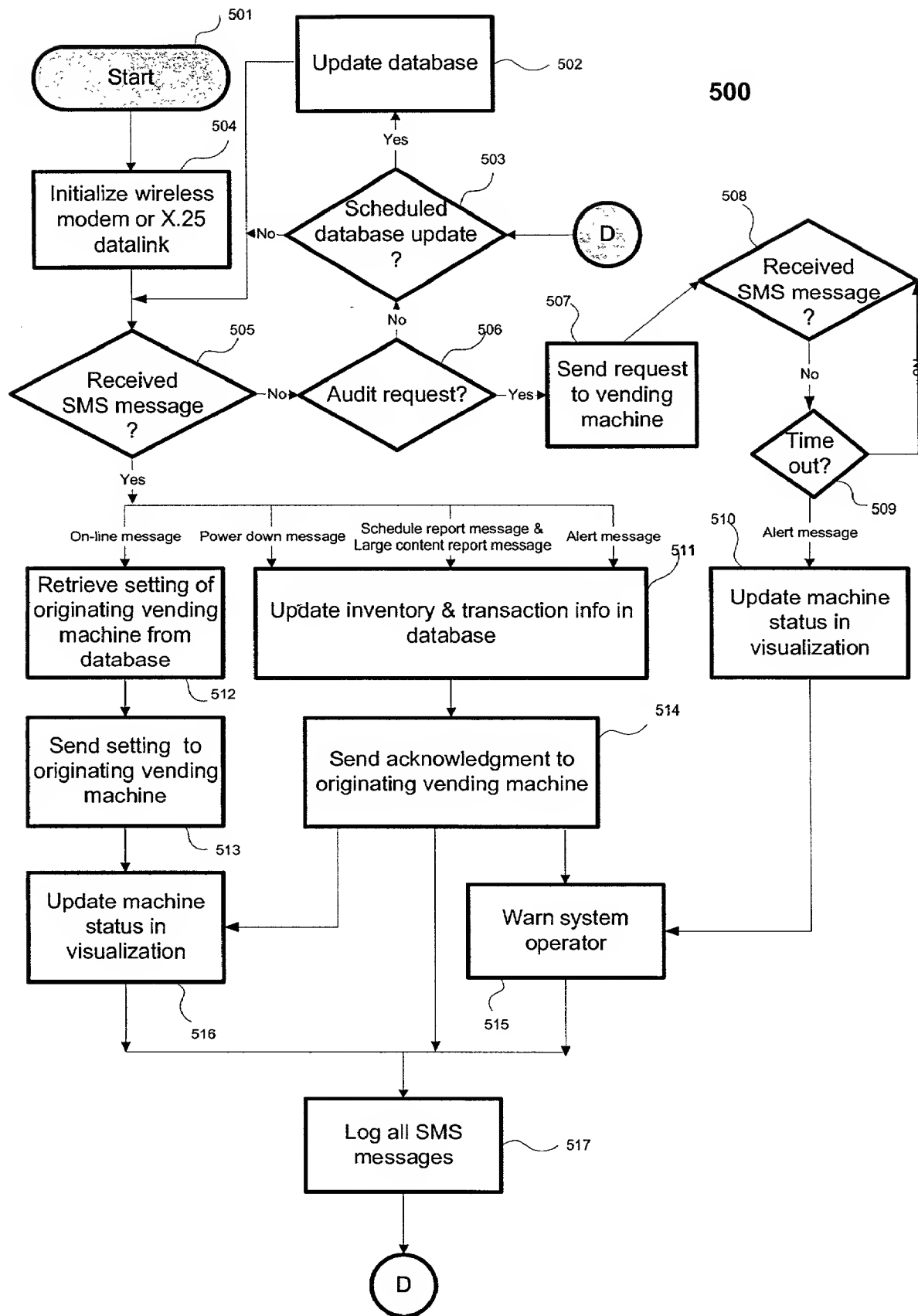


Fig. 14: Command and data flow of on-line inventory